

Cost-Benefit Analysis
Public Affairs 881
Fall 2006

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Class Meetings: Mondays/Wednesdays
8:30 to 9:45 a.m.
159 Van Hise

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Appointments at other times welcome.

Course Objectives: Cost-benefit analysis (CBA) has both narrow and broad applications. In its narrow application, it serves as a decision rule for selecting policies for maximizing economic efficiency. In its broader application, it provides concepts, techniques, and conventions for assessing economic efficiency, or components of economic efficiency, when efficiency is only one of the social goals relevant to policy choice. This course provides the conceptual foundations and craft skills to prepare you to be sophisticated consumers and producers of CBA.

Prerequisites: Some familiarity with the basic concepts of microeconomics and statistics is assumed. Those taking the course should have completed Public Affairs 880 and Public Affairs 818, or their equivalents.

Course Requirements and Grades: Four requirements promote the course objectives:

First, I expect active participation in class and diligence in the completion of problem sets and other assignments. Our class time will be split between lectures and discussion. If this format is to be effective for both you as an individual and your classmates, then you must be prepared to participate in discussion. Sometimes discussion will be around assigned problems, including some that require reading about topics not yet covered in lecture. It is important that you put effort into these problems so that you can fully participate in their discussion. The effort will also reward itself in terms of the depth of your understanding of course material. *Fifteen percent* of your course grade will be based on class participation and assignments.

Second, an in-class midterm examination (**November 6**) will give you an opportunity to demonstrate your mastery of the basic concepts of CBA. *Twenty-five percent* of your course grade will be based on your performance on the midterm examination.

Third, although the theory of CBA can be easily learned in the classroom, the craft for actually doing it in a complex world, with inevitable limitations on the availability time, data, and expertise, probably cannot. To get practice in actually doing CBA, you will participate in a team project on a real problem — this semester about half of the projects have actual clients. The teams and projects will be randomly

assigned. During the semester, each team will make several oral and written progress reports. A complete report is due on **December 4**. December 4, 6, 11 and 13 will be devoted to presentation of the projects. A revised draft is due **December 16** in PDF format. As most policy analysts work in teams, you should view your participation in the project as an important part of your development as policy analysts. I expect teams with clients to be professional in interacting with them. I also expect each team member to be fully engaged with the project, and I reserve the right to penalize individuals who are not fully familiar with their teams' products. I will ask each team member to evaluate the effort and contributions of other team members, and I will consider the responses in assigning individual grades. *Forty percent* of your course grade will be based on the team project.

Fourth, there will be a take-home final examination **distributed December 16 and due December 18 at noon**. *Twenty percent* of your course grade will be based on the final examination.

Textbook: We will make extensive use of the following text (BGVW):

Anthony E. Boardman, David H. Greenberg, Aidan R. Vining, and David L. Weimer, *Cost-Benefit Analysis: Concepts and Practice*, 3rd edition (Upper Saddle River, New Jersey: Prentice Hall, 2006).

Copies are available in the bookstore and a copy is on reserve in the College Library. Other readings are also on reserve at the college library.

Team Projects: The topics for team projects are as follows:

1. Jefferson County's First Offender Program (JCFOP) is a deferred prosecution program available to a significant number of misdemeanor offenders and some appropriate first time felony offenders. JCFOP acts as an alternative to prosecution, aimed at increasing efficiency and reducing recidivism, overall caseloads, the need for judicial staff resources as well as other costs associated with a traditional prosecution track. Participants in JCFOP benefit from eventual dismissal of criminal charges, helping to preserve a clean criminal record especially critical to any future employment. JCFOP clients are obligated to meet certain requirements as a condition preceding case dismissal, including developing and performing a contractual agreement, demonstrating personal growth, participating in counseling or substance abuse treatment, as well as consistent contact with the District Attorney's office to ensure ongoing compliance. Conduct a cost-benefit analysis of the JCFOP. Client: Jaymie McCoy, Director, Jefferson County First Offender Program, mccoy.jaymie@mail.da.state.wi.us.

2. Since 1991, Community Treatment Alternatives, a part of the Mental Health Center of Dane County, has provided "assertive community treatment" for people with severe and persistent mental illnesses who have come in contact with the criminal justice system. Participants typically enter the program as an imposed condition for probation, parole, or bail. Many participants stay in the program after their legal commitments end. Before/after comparisons of the first 58 program participants found reductions

in jail time and psychiatric hospitalizations and increases in employment and independent living. The program currently has about 80 participants. Conduct a cost-benefit analysis of the current program relative to no program as well as to an appropriate expansion of the program. Your analysis may be able to infer some impacts from the data on the first 58 participants, but will also have to rely on impacts reported in the research literature rather than an analysis of data on more recent participants. Client: David Delap, CTA Program Manager, dave.delap@mhcdc.org.

3. The Pretrial Mental Health intervention Program in Milwaukee is Administered by Justice 2000, Inc., a private non-profit organization working to promote and expand opportunities for the safe release and community integration of criminal offenders. Defendants are referred to the program by the courts, attorneys, community sources, and by the Forensic Tracking and Jail Release Planning Units. Justice 2000 provides case management services for the target population that includes: defendants who would otherwise be detained on cash bail; defendants who have been found competent to stand trial or have been restored to competency, and need additional community services to help maintain competency; and defendants who present with symptoms of serious mental disease or defect but have no previous treatment history. The program provides pretrial forensic case tracking and release planning services to defendants who are subject to Wisconsin Statutes 971.14(2) and 971.14(5) dealing with competency to stand trial. Beginning in August 2004, the program provides pretrial release planning services for incarcerated mentally ill detainees at the Criminal Justice Facility and House of Correction. Beginning in January 2006, the program provides release planning and community pretrial supervision for defendants with AODA needs. The program also coordinates a bench warrant surrender program, known as the FTA program, to help return defendants to court before a bench warrant is served to avoid another booking and to assist the court in moving cases toward resolution. Conduct a cost-benefit analysis of either the full program or its primary components relative to no program. Also consider an appropriate expansion or replication. Client: Marilyn Walczak, mwalczak@justice-2000.org.

4. People of low or modest income often cannot afford to obtain legal advice or representation from attorneys in civil law matters. The barriers and potential harms may be particularly great for people threatened with domestic violence who might otherwise have been protected by restraining orders. Design a state-funded program to provide access to attorneys for those in potential need of restraining orders. Conduct a cost-benefit analysis of the program relative to the status quo. Client: Jeffrey L. Brown, State Bar of Wisconsin, jbrown@wisbar.org.

5. The regional transportation scheme called Transport 2020 (<http://www.transport2020.net/>) presents a plan for a rapid transit bus system (Alternative 1, Bus Rapid Transit, BRT). Prepare a cost-benefit analysis of this alternative. Client: Susan De Vos, Madison Area Bus Advocates, mabaa@tds.net.

6. Alderman Edward Burke, Chair of the Chicago City Council's Finance Committee, recently proposed that restaurants in Chicago, the "City of Broad Shoulders" be banned from using trans fats in food preparation. (You can listen to National Public Radio story on the proposal at <http://www.npr.org/templates/story/story.php?storyId=5539138>.) Conduct a cost-benefit analysis of

the proposed ban.

7. The residential use of compact fluorescent light (CFL) bulbs offer large potential energy savings. Focus on Energy, a Wisconsin public-private partnership, currently offers an incentive plan to encourage the use of CFLs. (For an assessment, see, http://www.doa.state.wi.us/docs_view2.asp?docid=5937.) Design a program that would result in the faster adoption of residential CFLs and estimate its social costs and benefits.

8. Since 2004, Wisconsin Medicaid has covered fluoride varnish treatments for children by certified providers (<http://dhfs.wisconsin.gov/Medicaid/updates/2004/2004-14.htm>). Design a program to expand the availability of fluoride varnish for Wisconsin children in low income families. Predict the costs and benefits of the program.

I will evaluate each team in terms of how much progress it makes in light of the scope of the topic, the complexity of the issue, and the availability of information. For those projects with actual clients (projects 1 through 5), my assessment will reflect comments from the client on the usefulness of the product and the professionalism of the team.

Tentative Schedule

Introduction (Sept. 6)

BGVW, Chapter 1

Scan: <http://www.epa.gov/ttn/ecas/econdata/Rmanual2/2.2.html>

Team projects organized

Note: Selected projects from last year will be distributed as PDF files by e-mail. Also, during the course of the semester, a number of additional readings and spreadsheet exercises will be distributed by e-mail.

Case: O'Hare Expansion — Special Guest Appearance, Professor Bob Haveman (Sept. 11)

Class Discussion of Team Projects from Previous Years (Sept. 13)

Conceptual Foundations (Sept. 18)

BGVW, Chapter 2 (Prepare exercises 2, 3, and 4 for class)

Valuing in Primary Markets (Sept. 20, 25, 27 and Oct. 2)

BGVW, Chapter 3 (Prepare exercises 1 and 2 for class)

BGVW, Chapter 4 (Prepare exercises 1, 2, and 3 for class)

Spreadsheet Exercise 3.3

Spreadsheet Exercise 4.4

Valuing in Secondary Markets (Oct. 4)

BGVW, Chapter 5 (Prepare exercises 1, 2, and 3 for class)

Project report due: Each team should prepare a five- to seven-page (double-spaced) report that describes the issue being addressed in the project.

Spreadsheet Exercise 5.4

Basics of Discounting for Time/Social Discount Rate (Oct. 9 and 11)

BGVW, Chapter 6 (Prepare exercises 1, 3, and 4 for class)

BGVW, Chapter 10 (Prepare exercise 1 for class)

Scan: <http://www.whitehouse.gov/omb/circulars/a094/a094.html>

Spreadsheet Exercise 6.6

Expected Values and the Value of Information (Oct. 16 and 18)

BGVW, Chapter 7, pp. 156-166, 176-185 (Prepare exercises 1, 3, 4, and 6 for class)

Sensitivity Analysis (Oct. 23 and 25)

BGVW, Chapter 7, pp. 166-176 (**Hand-in write-up of exercise 5 — Spreadsheet Exercise 17.5**)

Project report due (Oct. 23): Each team should prepare a list of the relevant categories of costs and benefits, and indicate how each can be measured. *Read BGVW, Chapter 15, to get an idea of available shadow prices from secondary sources. Those working on criminal justice projects should also review Steve Aos, et al., “The Comparative Costs and Benefits of Programs to Reduce Crime, v. 4.0, Washington State Institute for Public Policy, May 2001 (<http://www.wsipp.wa.gov/>).*

Option Price and Option Value (Oct. 30)

BGVW, Chapter 8

Spreadsheet Exercise 8.3

Life-Cycle Analysis (Nov. 1)

Joule A. Bergerson and Lester B. Lave, "Should We Transmit Coal, Gas, or Electricity: Cost, Efficiency, and Environmental Implication," *Environmental Science and Technology* 39:16 (2005), 5905-5910.

Visit www.eiolca.net and do the tutorial for the EIO-LCA model.

Midterm Examination (Nov. 6)

Estimation Based on Revealed Preferences: Demonstrations and Experiments (Nov. 8)

BGVW, Chapter 11 (Prepare exercise 2 for class)

Estimation Based on Revealed Preferences: Natural Experiments (Nov. 13)

BGVW, Chapter 12 (Prepare exercises 1 for class)

BGVW, Chapter 13 (**Hand-in write-up of exercise 3**)

Spreadsheet Exercise 12.2

David L. Weimer and Michael Wolkoff, "School Performance and Housing Values: Using Non-Contiguous District and Incorporation Boundaries to Identify School Effects," *National Tax Journal* 54:2 (2001), 231-253.

W. Kip Viscusi and Joseph E. Aldy, "The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World," *Journal of Risk and Uncertainty* 27:1 (2003), 5-76.

Contingent Valuation (Nov. 15 and 20)

BGVW, Chapter 9 (Passive use)

BGVW, Chapter 14 (Prepare exercise 2 for class)

Prior to beginning of section, complete survey at <http://www.unm.edu/~rberrens/gcc/>

Bruce Johnson and John C. Whitehead, "Value of Public Goods from Sports Stadiums: The CVM Approach," *Contemporary Economic Problems* 18:1 (2000), 48-58.

Dale Whittington, "Improving the Performance of Contingent Valuation Studies in Developing Countries," *Environmental and Resource Economics* 22:1&2 (2002), 323-367.

Mark Dickie and Victoria L. Messman, "Parental Altruism and the Value of Avoiding Acute Illness: Are Kids Worth More than Parents?" *Journal of Environmental Economics and Management* 48:3 (2004), 1146-1174.

Cost-Effectiveness (Nov. 22 and 27)

BGVW, Chapter 17* (**Hand-in write-up of exercise 2**)

Spreadsheet Exercise 17.3

Shadow Prices in Developing Countries (Nov.29)

BGVW, Chapter 16

Spreadsheet Exercise 16.4

Presentations (Dec. 4, 6, 11, and 13)

Team reports due December 4

Revised project reports (PDF file) and explanation of revisions due (Dec. 16)

Final Examination (distributed December 16 by e-mail; due at noon December 18)